Survey on Network Slicing for Internet of Things Realization in 5G Networks

Year: 2021 | Citations: 319 | Authors: Shalitha Wijethilaka, Madhusanka Liyanage

Abstract

Internet of Things (IoT) is an emerging technology that makes people's lives smart by conquering a plethora of diverse application and service areas. In near future, the fifth-generation (5G) wireless networks provide the connectivity for this IoT ecosystem. It has been carefully designed to facilitate the exponential growth in the IoT field. Network slicing is one of the key technologies in the 5G architecture that has the ability to divide the physical network into multiple logical networks (i.e., slices) with different network characteristics. Therefore, network slicing is also a key enabler of realisation of IoT in 5G. Network slicing can satisfy the various networking demands by heterogeneous IoT applications via dedicated slices. In this survey, we present a comprehensive analysis of the exploitation of network slicing in IoT realisation. We discuss network slicing utilisation in different IoT application scenarios, along with the technical challenges that can be solved via network slicing. Furthermore, integration challenges and open research problems related to the network slicing in the IoT realisation are also discussed in this paper. Finally, we discuss the role of other emerging technologies and concepts, such as blockchain and Artificial Intelligence/Machine Learning (AI/ML) in network slicing and IoT integration.